

DISCUSSION OF THE AMENDMENT

Claims 1-19 and 21-31 are active in the present application. Claims 22-31 are new claims. Support for new Claims 22 and 23 is found on page 3, lines 9-13 and the examples of the specification which disclose reaction products made by reacting a polyisocyanate component and only a polysiloxane component. Support for new Claims 24-27 is found in the original claims. Support for new dependent Claims 28-29 is found in the examples of the present specification. The previously presented claims are otherwise amended for matters of form. Support for new dependent Claims 30-31 is found in the examples of the present specification (see further discussion *infra*).

No new matter is added.

REMARKS

Applicants thank Examiner Loewe and SPE Kuo Liang Peng for the helpful and courteous discussion of August 28, 2008. During the discussion Applicants pointed out that the primary reference relied on by the office teaches a method that is different from the method of the present claims. Applicants further pointed out that the present application discloses methods for making polyurethanes not disclosed in the primary reference.

The Office asserts that the present claims are obvious over Reusmann (U.S. 2003/0198819) alone or in combination with Licht (U.S. 2004/0077777). Present independent Claims 1 and 6 require that polyisocyanates and isocyanate-reactive compounds are reacted in “miniemulsion.” Applicants submit that the reaction product formed by the reaction of a polyisocyanate and an isocyanate-reactive compound is structurally different when the reaction is carried out in miniemulsion, e.g., when carried out in an aqueous miniemulsion, in comparison to the reaction product obtained when the reaction is carried out in a conventional organic solvent.

The reaction of a polyisocyanate and an isocyanate-reactive compound in the manner required by the present claims forms a “primary dispersion” (see page 2, lines 9-11). Primary dispersions have small droplet size (e.g., 50-500 nm), a property which inhibits phase separation (col. 2, lines 5-7). The product of a reaction of a polyisocyanate and an isocyanate-reactive compound carried out under miniemulsion conditions is necessarily different from the product obtained when a polyisocyanate and an isocyanate-reactive compound are reacted under conventional organic solubilized conditions. This difference is manifested in the properties of the resulting dispersion. A dispersion obtained by conventional reaction conditions, i.e., in an organic solvent solution, must be separately converted to a water-based dispersion. The resulting water-containing dispersion is unable to

maintain the droplet size characteristics achievable when the reaction is carried out under miniemulsion conditions.

The Office states that there is nothing that distinguishes the aqueous dispersions taught by Reusmann from the aqueous dispersions of the present specification (see page 11 of the July 8, 2008 Office Action). Applicants submit that the requirement that the product of present Claim 1 is obtained under miniemulsion conditions necessarily means that the claimed aqueous dispersion is structurally different from the aqueous dispersions obtained by the method of Reusmann. This difference is manifested in the properties of the resulting dispersions. For example, a dispersion obtained in accordance with the presently claimed invention has smaller droplet size and has improved stability and separation resistance.

Reusmann discloses a process that provides a different product. In paragraph [0100] of Reusmann, the reaction of isophorone diisocyanate (IPDI) with Tegomer 2311 is described. The product of this reaction described in paragraph [0101] is an “inhomogeneous polysiloxane-polyurethane dispersion... in which the polysiloxane Tegomer H-Si 2311 had not been fully incorporated by reaction” (underlining added for emphasis) This stands in marked contrast to the results obtained in Examples 1-3 of the present specification (see page 14). Unlike Reusmann, the presently claimed invention is able to provide aqueous dispersions having small droplet size containing high molecular weight solids at a high solids content. The Reusmann reaction is unable to proceed to completion.

Applicants thus submit that the art relied on by the Office includes evidence showing that an aqueous dispersion obtained by the process of Reusmann is different from the aqueous dispersion obtained in the presently claimed invention as evidenced by at least the fact that the Reusmann dispersion includes unreacted starting materials.

Applicants have thus pointed to evidence proving that the reaction product of the Reusmann process is inherently different from a miniemulsion process. In view of such

differences, Applicants submit that those of ordinary skill in the art would have no motivation nor any expectation of successfully modifying the process of Reusmann to include the miniemulsion conditions of Licht or modify Licht to include the specific polysiloxane of Reusmann.

Applicants respectfully request withdrawal of the rejection.

The Office appears to be of the belief that one of ordinary skill in the art would modify Licht to use the polysiloxane of Reusmann to form an aqueous polymer dispersion. Applicants draw the Office's attention to new dependent Claims 22 and 23. The new dependent claims recite a polymer, i.e., the product of the reaction of a polyisocyanate and a isocyanate-reactive compound, that contains only reacted units of the polyisocyanate and the polyisocyanate-reactive compound.

Applicants point out that the process of Reusmann must include a further reactive unit in addition to any polydimethylsiloxane diol. In fact, in the process of Reusmann the polydimethylsiloxane diol is reacted as a mixture of "at least one further difunctional polyol" (see paragraphs [0009]-[0023]). In contrast, new dependent Claims 22 and 23 exclude the process of Reusmann because the Reusmann reaction composition must contain difunctional polyol compounds excluded by the new dependent claims.

Applicants submit that those of ordinary skill in the art would not be lead to the invention of new dependent Claims 22 and 23 in view of the fact that Reusmann requires the inclusion of a further difunctional polyol in addition to a polydimethylsiloxane diol.

Applicants thus submit that new dependent Claims 22 and 23 are further patentable over the art cited by the Office.

Applicants draw the Office's attention to new dependent Claims 30 and 31 which recite a polysiloxane of formula I having a molecular weight of from 500 to 838. Support for the amendment is found in the examples of the specification which disclose the use of

Tegomer 2111 which has a calculated molecular weight of 838 g/mol, i.e., for a methyl derivative (see page 13, lines 6-10).

In contrast to new dependent Claims 30 and 31, Reusmann requires the inclusion of a “linear polydimethylsiloxane diol of the molecular mass range of about 1,500 to about 10,000” (see paragraph [0010] of Reusmann). Applicants submit that the combination of Reusmann and Licht does not suggest the presently claimed invention because the art relied on by the Office does not disclose or suggest a polydimethylsiloxane diol having a molecular weight of 500-838.

Applicants thus submit that new dependent Claims 30 and 31 are further patentable over the art cited by the Office.

Applicants draw the Office’s attention to new dependent Claims 28 and 29. New dependent Claims 28 and 29 require that the polyisocyanates and isocyanate-reactive compounds recited in Claims 1 and 6 are reacted in a single “reaction mixture” to form a stable aqueous dispersion having a droplet size of 50-500 nm. Reusmann on the other hand carries out a two step process to form an aqueous polymer dispersion. In a first step Reusmann reacts polymer precursors in an organic solvent. In a subsequent step Reusmann adds water to the reaction mixture formed by reacting the polymer precursors in an organic solvent to thereby form an aqueous polymer dispersion.

Applicants submit that one of skill in the art would not be motivated to combine Reusmann and Licht in view of the fact that Reusmann discloses a two-step reaction strategy that is not compatible with any one-step reaction strategy of Licht. Applicants thus submit that new Claims 28 and 29 are further patentable over the art of record. .

For the reasons discussed above in detail, Applicants submit that the rejections of the claims in view of the art cited by the Office should be withdrawn and the claims allowed.

Respectfully submitted,

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